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BRIEF NOTE

A PRELIMINARY GUIDE TO THE IDENTIFICATION OF FAMILIES OF LARVAL FISHES OCCURRING IN THE OHIO RIVER[1]

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Several guides exist providing taxonomic information on Great Lakes fish larvae (Lippson 1976, Nelson and Cole 1975), and Hogue et al. (1976) provided a reference for the identification of warmwater riverine larvae in the Tennessee River. However, no published information currently exists on the taxonomy of larval fishes occurring in the Ohio River drainage.

This taxonomic key originated as a result of larval fish studies conducted in the upper one-half (500 miles) of the Ohio River in the vicinity of 5 electrical generating stations over the period 1976–79. Over 4000 larval fish tow samples from the mainstem Ohio River and selected tributaries were processed and identified. All family descriptions in the key, except for Percopsidae (trout-perches) and Amiidae (bowfins), are based on examination of larvae collected during the study. One of the 3 characters used to separate Poeciliidae (livebearers) and Cyprinodontidae (killifishes) is taken from the literature. The Percopsidae and Amiidae descriptions are based on the literature, and should be considered as tentative information for Ohio River specimens. These 2 families were included to make the key as comprehensive as possible. The 20 families covered in the key represent those groups most likely collected in the mainstem Ohio River or in lower reaches of major tributaries.

Terminology used for developmental stages of larvae follows Snyder et al. (1977). Morphological terms and myomere

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count procedures follow Hogue et al. (1976). To use the key properly, it is recommended that larvae be examined using a polarized stereomicroscope fitted with an ocular micrometer.

FAMILY KEY

1A. Larvae with multiple gill slits; mouth noticeably inferior, forming a suctorial disc ..... Petromyzontidae (lampreys)

1B. Larvae without multiple gill slits; mouth not forming a suctorial disc 2

2A. Larvae with more than 2 pairs of barbels or barbel buds evident on the head ..... Ictaluridae (catfishes)

2B. Larvae with either no barbels or 1-2 pairs of barbels or barbel buds on head 3

3A. Total myomeres 35 or fewer ...4

3B. Total myomeres more than 35.....13

4A. Total myomeres more than 27.....5

4B. Total myomeres 27 or fewer...12

5A. Pectoral fin length greater than 16% of total length (TL)..... Cottidae (sculpins)

5B. Pectoral fins smaller, length less than or equal to 16% of TL.....6

6A. Mouth, if formed, superior (lower jaw clearly extends past upper jaw); yolk-bearing larvae have several small oil droplets scattered throughout yolk 7

6B. Mouth, if formed, not superior (lower jaw equal with upper jaw or overhung by snout); yolk-bearing larvae have either one or no oil globules in yolk sac 8

7A. Dorsal fin origin posterior to or even with anal fin insertion (Hogue et al. 1976); metalarval characters present at hatching; scales often present by ca. 7 mm TL..... Poeciliidae (livebearers)

7B. Dorsal fin origin anterior to anal fin insertion (Hogue et al. 1976); metalarval characters not present at hatching; scales not present until ca. 13 mm TL..... Cyprinodontidae (killifishes)

8A. Preanal myomeres 25 or more; yolk-bearing larvae have no oil globule in yolk sac; preanal length greater than 2.3 times the postanal length..... Catostomidae (suckers)

8B. Preanal myomeres less than 25; yolk-bearing larvae have a single oil globule in yolk sac; preanal length less than 2.3 times the postanal length 9

9A. Eye small, length enters greatest depth of head 3 or more times ..... Percopsidae (trout-perch) (Lippson 1976, Nelson and Cole 1975)

9B. Eye larger, length enters greatest depth of head less than 3 times.....10

10A. Preanal myomeres less than 14; yolk-bearing larvae have a posteriorly placed oil globule in yolk sac ..... Centrarchidae (sunfishes)

10B. Preanal myomeres 14 or more; yolk-bearing larvae have either an anteriorly or posteriorly placed oil globule in yolk sac 11

11A. Yolk-bearing larvae have a posterior oil globule in yolk sac; pigmentation ranges from moderate (concentrated on head and mid-laterally) to profuse (over entire body); in mesolarvae and metalarvae, gut is thick and markedly flexed or coiled..... Centrarchidae (sunfishes)

11B. Yolk-bearing larvae have an anterior oil globule in yolk sac; pigmentation ranges from very light to moderate (concentrated on dorsum of head and ventrum); in mesolarvae and metalarvae, gut is straight or slightly flexed with some decurvature at vent, but never coiled ..... Percidae (perches)

12A. Preanal length less than postanal length; gut looped and strongly decurved at vent; a large, posteriorly placed oil globule in yolk sac (may be displaced in damaged specimens); numerous small melanophores on dorsum of head and yolk sac ..... Sciaenidae (drum)

12B. Preanal length approximately equal to postanal length; gut s-shaped, vent not decurved; an anteriorly placed oil

globule in yolk sac (may be displaced in damaged specimens); only a few scattered melanophores on dorsum of head. . . . . .Percichthyidae (temperate basses)

13A. Preanal length greater than 2.3 times the postanal length. 14

13B. Preanal length less than or equal to 2.3 times the postanal length 16

14A. Preanal length at least 3 times the postanal length; gut striated; yolk sac, if present, extends less than one-half the length of the gut; larvae with few melanophores . . . . . Clupeidae (herrings)

14B. Preanal length between 2.3 and 3 times the postanal length; gut not striated; yolk sac, if present, extends more than one-half the length of the gut; larvae with scattered to heavy rows of melanophores 15

15A. Larvae with profuse dark bands of melanophores, especially mid-laterally; yolk sac, if present, is robust, extending slightly more than one-half the length of the gut; postanal myomeres 11 or more. . . . . Esocidae (pikes)

15B. Larvae with scattered to heavy melanophores, sometimes forming distinct dorsal, mid-lateral and ventral rows; yolk sac, if present, is cylindrical, extending the entire length of the gut; postanal myomeres generally less than 11 (range 5-12) . . . . . Catostomidae (suckers)

16A. Preanal myomeres 28 or fewer 17

16B. Preanal myomeres more than 28 19

17A. Postanal myomeres less than 16 (range 10-15). . . . Cyprinidae (minnows)

17B. Postanal myomeres 16 or more. 18

18A. Preanal length greater than or nearly equal to postanal length; yolk-bearing larvae have an anteriorly placed oil globule in yolk sac. . . . Percidae (perches)

18B. Preanal length distinctly less than postanal length; gut very short in larvae up to 8-9 mm TL, with vent migrating posteriorly with development; yolk-bearing larvae do not have an oil globule in yolk sac . . . . . Atherinidae (silversides)

19A. Eyes small, diameter 3% or less of TL; individuals larger than 8 mm TL with barbels or barbel buds present on mandible 20

19B. Eyes larger, diameter more than 3% of TL; no barbels or barbel buds present on mandible. 21

20A. Larvae with one pair of mandibular barbels or barbel buds. . . . . Polyodontidae (paddlefishes)

20B. Larvae with 2 pairs of mandibular barbels or barbel buds . . . . . Acipenseridae (sturgeons)

21A. Preanal myomeres 35 or fewer (range 29-35); snout blunt; no adhesive disc present on tip of snout . . . . . Hiodontidae (mooneyes)

21B. Preanal myomeres more than 35; adhesive disc or rudimentary tubercles present on tip of snout, at least through protolarval stage. 22

22A. Snout elongate; adhesive disc present on tip of snout in protolarvae and mesolarvae; no gular plate present; total myomeres less than 60. . . . . Lepisosteidae (gars)

22B. Snout blunt; adhesive disc present on tip of snout through protolarval stage (adhesive disc is reduced to tubercle in larvae greater than 10 mm TL); gular plate formed after 10 mm TL; approximately 60 total myomeres . . . . . Amiidae (bowfins) (Jones et al. 1978)

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